PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
FLOYD B. CAROTHERS
CAROTHER AND CAROTHERS
445 FORT PITT BLVD., SUITE 500
PITTSBURGH, PENNSYLVANIA 15219

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

	Date of mailing (*day/month/year*) 22 JUN 2006
Applicant's or agent's file reference 4410 PCT CIP II	FOR FURTHER ACTION See paragraph 2 below

International application No.	International filing date (*day/month/year*)	Priority date (*day/month/year*)
PCT/US06/03394	30 January 2006 (30.01.2006)	28 July 2005 (28.07.2005)

International Patent Classification (IPC) or both national classification and IPC

IPC(7): C03B 33/09 and US Cl.: 83/16; 225/1, 93.5; 65/105,112

Applicant

GYROTRON TECHNOLOGY, INC.

1. This opinion contains indications relating to the following items:

☒	Box No. I	Basis of the opinion
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(*b*) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US	Date of completion of this opinion	Authorized officer
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	24 May 2006 (24.05.2006)	Sean E. Vincent Telephone No. (571) 272-1700

Form PCT/ISA/237 (cover sheet) (April 2005)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US06/03394

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of:

☒ the international application in the language in which it was filed

☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ on paper

☐ in electronic form

c. time of filing/furnishing

☐ contained in the international application as filed.

☐ filed together with the international application in electronic form.

☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US06/03394

Box No. V Reasoned statement under Rule 43 *bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 3 and 6-25	YES
	Claims 1,2,4,5 AND 26	NO
Inventive step (IS)	Claims 3, 6-10 and 13-25	YES
	Claims 1,2,4, 5, 11, 12 AND 26	NO
Industrial applicability (IA)	Claims 1-26	YES
	Claims NONE	NO

2. Citations and explanations:

Claims 1, 2, 4, 5 AND 26 lack novelty under PCT Article 33(2) as being anticipated by Hafner. Hafner taught methods of separating glass bodies by thermal shock including exposing the body to electromagnetic radiation (including microwave: see col. 2, lines 23-32). By selecting "microwave" radiation, Hafner would have necessarily used a frequency between about 10 and 1000 GHz. A cooling gas was applied to the glass being separated in Hafner. Hafner also taught that multiple heat sources 13, 14 and 23 were used, wherein 13 and 14 both fell under Hafner's definition of "laser" from col. 2, lines 23-32 (see col. 3, line 69 to col. 4, line 71 and the figure).

Claim 12 lacks an inventive step under PCT Article 33(3) as being obvious over Hafner. Hafner did not teach the selection of a source of microwave radiation. It is the position of the examiner that gyrotron, klystron, magnetron, traveling wave tube and backward wave oscillators were commonly known alternative microwave sources. A magnetron was known for use in household microwave ovens. It would have been obvious to use one of the claimed microwave sources, especially a magnetron because they were so well known for microwave heating applications.

Claim 11 lacks an inventive step under PCT Article 33(3) as being obvious over Hafner in view of Kondratenko. Hafner failed to teach that the surface of the glass body was scribed. Kondratenko taught that scoring a glass surface before thermal shock treatment was known (see col. 2, lines 42-61). It would have been obvious to score the surface of the glass in Hafner because Kondratenko taught that it was known to enhance the reliability of crack development.

Claims 3, 6-10 and 13-25 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest any of the following features:

a) selecting the microwave frequency such that the skin layer was approximately equal to the thickness of the glass body
b) placing the glass body on a cold metal
c) exposing the microwave through a cold microwave transparent material lying on the body's irradiated surface
c) exposing through a metal mask with an opening
d) applying a microwave absorbent material along the separation path.
e) elongated microwave radiation
f) microwave radiation moved at least two times along the separating path
g) power density selected to delaminating temperature of laminated glass

It would not have been obvious to incorporate these features into the prior art methods.

Claims 1-26 meet the criteria set out in PCT Article 33(4), and thus meet industrial applicability because the subject matter claimed can be made or used in industry.

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